THE TREATMENT OF THE PATIENT WITH ANGINA PECTORIS*

HARLOW BROOKS
New York

The most important basic fact for the physician who is called upon to treat a patient suffering from angina pectoris to realize is that angina pectoris is not a disease, but a symptomatic picture which may be caused by a quite divergent basic pathology. He must also recognize the fact that it is but rarely that he is able to strike directly at the basic pathology concerned in angina pectoris, but that he must in most instances treat the symptoms and signs which are in turn dominantly modified by the personality, emotional status and individuality of the patient, even much more so than in most disease conditions. Physical factors are often much subordinated to emotional ones in this complex and the social obligations and psychic reactions of the individual sufferer are usually of equal if not even greater import than anatomical ones. This is preponderatingly a syndrome in which the treatment of the patient outstrips in its importance the management of basic pathology.

As in most other medical conditions there are, however, exceptions to this general rule. These must each be also fully determined and appreciated by the physician. Where the syndrome is produced by syphilitic disease, which appears in but about 4 per cent of the cases in Eastern North America, this basic pathology must of course be directly attacked. The same is also probably true in at least some cases of gouty origin and perhaps also in other conditions. This is, however, the rare exception and not the rule in angina pectoris.

Hence it is that treatment if successful must be also twofold, one type directed to correct or to modify a basic causa-

* Read before the Stated Meeting of The New York Academy of Medicine, March 7, 1935, as part of a symposium: Angina Pectoris, with Special Reference to Coronary Artery Disease.

tive pathology which varies much in individual cases and secondarily to prevent or neutralize inimical emotional factors which strikingly vary also in each individual. We must in every instance comprehend and treat the highly individualistic physical, and especially the emotional characters of each patient.

This syndrome does not permit of a standardized scientifically based treatment, for the individual patient is not standardized but is a very pleomorphic biological and emotional integer.

The subject with angina pectoris is notoriously one sensitized particularly to many emotional factors, often of extremely varied character. Every clinician well realizes that emotional factors and stresses are quite as frequent exciting factors of the syndrome as are the varied physical and chemical conditions which also underlie it.

This is particularly strikingly manifested in those factors which incite or precipitate the attack. An association of emotional and physical exciting factors is almost certain to precipitate attacks in susceptible individuals. We may also say that given the basic mechanism of the condition, emotional states quite as certainly set the process in gear as can physical factors.

Thus it is that treatment, preventive, palliative or curative, must make full acknowledgement of these facts. One individual must differ in these respects as widely as individuals may differ one from another in any other plane, and so also it is certain that each person may differ at different times and under different emotional and physical states as much as in any other of the varied grades of life.

As a rule, and with most persons, emotional states may be more readily controlled and directed than physical ones. We must recognize also that emotional factors often very largely control the physical pictures. Few other organs in the body more strikingly illustrate this fact than does the heart. Anger, fear, love, surprise, even intense joy more strikingly and profoundly influence the heart rate and rhythm than most pathological or physical factors of which

we know. The same is also true of arterial, venous and capillary tension which vary more quickly under such stimuli or sedation than from any anatomically pathological pictures; as to the influence on capillary flow in particular, note the striking blush of embarrassment, the sudden and intense pallor of anger, the appearance of sweat, heat or cold of the skin, nausea and diarrhœa, and the enuresis of emotional origin and the like.

It is a fact that the danger of an attack of angina is in very large part coincident with the activity of the symptomatic manifestation. With the subsidence of the pain and anxiety of the attack, danger rapidly wanes. It is therefore most important that we study and attempt to evaluate these factors which are so necessary in the mechanism to prevent or lessen the angina. To a very large extent, prevention and relief are accomplished by similar type factors or measures, but in direct opposition. Of all these by far the most important is REST. The most complete form of rest, is, of course, sleep. Except in certain cases in which sleep appears to precipitate attacks, probably in accordance with the theory of Allbutt, sleep is one of our most efficient preventives of the onset of attacks. Sleep may be produced in adequacy or even in super-abundance by placid mental states, by the use of such sedatives as the bromides, chloral, the barbiturates, alkaloids of opium, and by many other drugs, among which we must not forget alcohol.

Monotonous reiteration, the reading of poetry, music and the like are all sedatives of real value in selected cases of angina pectoris. Music, usually one of our best sedatives, may, however, in certain individuals so stir the emotions, through keen appreciation, as to precipitate attacks. Mild exercises, intelligent physio-therapy are highly productive of rest in many instances. Electricity may be also employed and in by no means a small number of instances such measures may be found far more effective than drug sedatives.

Diversions, games, congenial conversation, even when some physical effort is entailed often act most effectively as

sedatives. Elimination of worry, however, if it may be accomplished, is often of tremendous value. I have accomplished the elimination of attacks in a good many instances by allowing the patient to return to congenial work. Control of environment, hospitalization when domestic conditions are trying and vice versa, sending patients from the hospital to enjoyable home surroundings has broken the attacks also in a good many instances. It must be always recalled that in the application of the rest element in treatment of cases of angina, the individualism of the patient must be especially considered.

From the mere physical standpoint, rest is most completely accomplished in bed. Many persons, however, particularly those of a restless and introspective character, do very badly on bed rest except when it is given for but limited periods of time and for definite purposes as in exhaustion and the like. Few cases are permanently improved by prolonged bed rest, except where coronary thrombosis has taken place when the physical rest is essential for anatomical reasons, as, so that the scar of the infarcted areas may be healed.

Control of environment is possible in many circumstances where the physician is the family doctor and when he fully retains a proper relationship of entire confidence of his patients, now, unfortunately, a somewhat rare occasion.

Under environment it is the function of the physician to arrange for play and diversion as much as it is to assist the patient to adjust his business and social obligations to affairs which he may carry on, not only without detriment but often with real benefit.

Climatic adjustment is in very many instances a matter of very great importance. Angina pectoris is relatively rare in the tropics and it is less in the subtropics than in the cold and temperate zones. Where it is possible for the patient to spend perhaps only the inclement months in a tropical or subtropical climate, it may be wisely advised. Some patients do better in moist warm climates, such as in Florida and southwestern California, Spain, in India and

the like. Others do best in dry warm climates, as in southeastern California, Arizona and New Mexico, in Egypt, or in parts of Old Mexico.

Altitude may also be advantageously employed not only as regards temperature, but also as regards winds and air pressure. Thus it is that the therapeutist must familiarize himself with many geographical factors, with conditions at sea and the like; all are matters of great import to the patient with angina pectoris. Exercise requirements must be also studied and in considerable part this considers also altitude, days of sunshine and heat. As a general rule patients do not thrive at the higher altitudes and many are at their very best at sea level or on the coast.

The problem of vasodilatation has a good deal of bearing on these matters of climate and altitude. As a general thing patients do not do well at the higher altitudes, and though some are best at medium altitudes the matter as a rule must be worked out experimentally. Allergy, and sensitivity to prevailing foods and to plant life becomes of importance. This especially applies to those numerous persons of marked allergic sensitivity, for these agents also tend toward increasing attacks or bring immunity to them.

As a general rule it will be found that conditions favoring vasodilatation are desirable. Warmth, comfort and congeniality of surroundings are matters of very great import in this respect. Properly adjusted hydrotherapy and physiotherapy of other types are all matters of importance in these respects and much of the benefits achieved through the agency of the sedatives may act through these channels. The value of such drugs as the bromides, chloral, the barbiturates, of paraldehyde and finally of the opium group act in this way. The judicious and timely employment of this class of drugs can be most fittingly applied through many of these agents. Alcohol is one of our standby substances for this purpose and many patients find that they can much mitigate and diminish their attacks by the use of alcohol, especially when administered at bed time or given with the meals. This fact has been fully recognized by many modern

writers on the subject, but it is particularly forcefully emphasized by the observation of Heberden, who first described the condition and who rated alcohol as second only to the opium group in point of its efficiency in this respect.

Lauder Brunton by introducing the use of the nitrites for the relief of acute attacks of the syndrome conferred an ineffable boon on most of the sufferers from angina pectoris. In the average case there is no other drug so prompt and efficient as the nitrites in the abortion of an acute attack unless it be accompanied by a coronary thrombosis in which instance the nitrites are usually of little avail. The nitrites given as a routine in the prevention of attacks is also tremendously beneficial in a very high percentage of cases, as every physician knows.

The control and elimination of the sense of pain is one of the major purposes of treatment in angina pectoris. It has already in large part been suggested in what has gone before but it is exceedingly important for the physician to realize that in most cases with the elimination of pain the danger of the attack is also much done away with. Suggestion and autosuggestion are often of tremendous value in the control of pain in many medical conditions but they are well nigh useless in true angina pectoris.

The control of pain is considerably enhanced by the maintenance of a chronic state or condition of sedation such as we may bring about through the action of the vasodilators, but relief of the suffering of the immediately acute attack can, as a rule, be accomplished except when thrombosis of a coronary has taken place when powerful sedatives and analgesics are demanded, morphine, opium or some of their combinations. Alcohol in massive doses is recommended by Heberden, but we now have other much more quickly acting and more efficient drugs for this purpose.

In most cases the combination of the use of the opiates in acute and severe attacks on a background of other soporifics and sedatives as chloral, paraldehyde or the barbiturates are often well attended. Mere vasodilators such as the

salts of theosine and caffeine as a rule are not very effective for the relief of pain except as preventatives and unless these drugs are combined with routine exhibition of pure sedatives they still have the unfortunate effect of causing considerable nervous and mental stimulation which, in turn, acts to excite the numerous factors which play so large a role in the precipitation of attacks.

The value of these drugs in actual coronary thrombosis or coronary narrowing is, however, very important, as most of us know. It is a curious fact however that many prescribe theosine, caffeine sodium benzoate, metaphylin, theominal, and at the same time cry out against the use of tea and coffee, which are so much more agreeable ways of introducing these very useful drugs.

Some physicians lay great stress on the importance of the dietetic treatment of angina pectoris. As a rule this is very ineffective and not a well based theory except in those instances in which an allergic factor may be introduced through food. In the main it is the quantity of food taken, and the speed of its ingestion which are the more important factors. It is usually the over distention of the stomach and the pressure exerted by the over distended stomach on the diaphragm which precipitates the attack, and not the character of the foods as such. To a certain limited degree, however, this statement may be qualified where there is a salt retention of importance. The salt rich foods, therefore, may require limitation of ingestion. In gouty cases the nitrogen rich foods must be eliminated. In allergic cases, as so many are to tobacco for example, this drug or condiment must be much more limited or entirely eliminated.

For the same reason foods which excite excessive flatulence and colonic distention, as cabbage, turnips, beans, the fats and the like may be wisely much curtailed. Constipation and all manner of abnormal fermentative processes within the gastro-intestinal tract are also conditions which may become of importance, but their role is usually much exaggerated by the lay public and the lay medical advisor.

Though the syndrome depends on actual cardiac pathology without probable exception, acting in most cases in conjunction with a sensitized nervous and sympathetic arc, there are other pathological conditions which may play a role in the occurrence of angina pectoris. Thus emphysema, adhesive pleurisy, pulmonary fibrosis, chronic bronchitis and bronchiectasis, pulmonary and bronchial neoplasms, and the like may become important determining factors.

The same is also true of some endocrine defects as in thyroid disease, either of the hypo- or the hyper-active types. Adrenal disease also probably plays some part in many cases and probably also the sex glands and pituitary disturbances as well. The very interesting and suggestive work which Crile has done in adrenal isolation has impressed the writer greatly.

It is, I am sure, apparent that the treatment of angina pectoris may be a very complex problem indeed, and it is further apparent that intimate individual study is the essential of success in the management of any case.

All too little attention has been paid in the past to the preventive treatment of angina pectoris. Every clinician of experience knows that coronary artery disease, aortitis and most of the conditions which lead on to the production of the syndrome are highly hereditary ones. The syndrome is a definitely familial one, and yet how very little attention has been paid to its prophylaxis.

The records of most active practitioners show all too clearly that heredity is a very important factor in the occurrence of angina and in most families even the specific type of the syndrome is to a considerable extent preserved. How very wise it would be to advise against marriage among members of anginal or coronary disease families, and where children are born to such unions or in such families to teach them from their early years the building up of self control of the emotional tendencies and the like. Prophylactic training against the development of early arteriosclerosis might be easily cultivated, and the early training in ath-

letics, in the habits of study and in the selection of occupation, diversions and the like might readily build up a resistance against the disease rather than to develop a predisposition by environment, diet, habits and customs of life which are well known to favor the evolution of the pathology back of the syndrome.

The time allotted to me this evening for the discussion of the treatment of the patient with angina pectoris is very brief for so important a topic but I should much fail my purpose did I not give some time to the presentation of the operative methods of treatment.

Very briefly stated operations in this condition are done for two quite different purposes. The first to be considered is those procedures which are primarily designed to relieve the suffering and the second is those which are performed with the hope of relief of basic pathology. Both groups of operations are of comparatively recent origin and consequently few clinicians have thus far seen enough conclusive results on which to base a sound prognostic opinion.

Probably the most simple of the procedures designed to relieve the distress of the syndrome, for we all meet with cases in which medicines alone fail us in this respect, is through injection of the nerve roots, substantially by means of nerve block. Probably the most satisfactory method is that of Swetlow. It succeeds in its purpose in the hands of skilful operators, in a very considerable number of cases. It is rarely however permanent in its final results and the danger of death is not averted by this method.

These same criticisms apply in the main also to the operations which involve section of the sympathetic trunks of the neck or the removal of the cervical sympathetic ganglia. There are several operations of this type under study, perhaps the most successful are based on the primary work of Jonnesco. In some cases these methods give great relief of the agony of the syndrome, they do not relieve pathology however, many cases recur and even immediate relief is problematic. Mackenzie among others promptly pointed out that to some extent the danger of death was increased

by these operations, in as much as the warning of pain was blocked and the patient was therefore tempted to undertake more effort because of this fact. My own observation however does not entirely bear out this statement since it appears that in at least some instances a diminution in the nervous reflex exciting attacks is also gained by the operation. Thus far the results have not justified the operation except in cases where the agony was so great that almost any risk was worth the taking. Clinicians in general appear to feel that these operations should be reserved for severe cases only, instances in which very inadequate relief only could be won by rest and by medical treatment.

Of the second group of surgical attack of the disease in which an attempt to remove the causative pathology is made, undoubtedly the most popular method at present is total or subtotal thyroidectomy. That thyroid pathology may play a weighty role in many cases, I think is beyond doubt but that it is universal remains to be proven by results and not theory. Subtotal thyroidectomy has greatly relieved some cases in my observation, in a few it has produced an apparent cure, at least for the time being.

I have not seen enough cases in which total thyroidectomy was performed to give a personal opinion, what I have seen has given me no encouragement, nor has this operation equaled the result achieved by the subtotal method, in my opinion.

Still a newer operation attempts to correct the condition by the establishment of an adventitious circulation. One wonders if it will be more successful than that accomplished in adhesive pericarditis.

For a very few remaining moments I now wish to take up in a somewhat more specific manner the treatment of the individual in the acute attack of angina pectoris. The first object should be to produce a vasodilatation as promptly as possible. This is most readily accomplished by the very prompt administration of nitroglycerine or of amyl nitrite. A little experience with each individual case will soon show

which of these two is the more individually effective. Nitroglycerine is best given in solution, but fresh tested tablets, preferably hypodermic ones are thoroughly satisfactory. They can be crushed by the teeth and swallowed, it is far more satisfactory than the attempt to hold the tablet under the tongue. When amyl nitrite fumes are inhaled the capsule should be crushed in the handkerchief and a concentrated gas inhaled if the best result is expected. Neither of these drugs is dangerous in itself, though to withhold them is often highly so.

If prompt relief of pain is experienced, no repetition is indicated, but if otherwise it may be repeated or a general sedative taken, such as chloral, a barbiturate, amytal or the like. The second object is to give a sedative which is also a slower acting vasodilator. Morphine is best but for obvious reasons it is not usually wisely so used. A good drink of a strong alcoholic is often very efficacious. Rest, physical and emotional, and if possible a short period of sleep is very desirable. A very definite effort to self control should be made a part of this treatment, for fright, terror or anger prolong and tend to reexcite the attack. Do not take food, exercise, or engage in any emotional effort until after a short or longer period of rest has been taken.